

What is claimed is:

1. An isolated polypeptide comprising a BOG polypeptide fragment, said BOG  
5 fragment comprising a pRb binding motif and a casein kinase II phosphorylation motif.
2. The BOG polypeptide fragment of claim 1, wherein said BOG polypeptide fragment is  
a full length BOG polypeptide.
- 10 3. The BOG polypeptide fragment of claim 1, comprising an amino acid sequence as  
shown in Table 1, 5 or 7.
4. The BOG polypeptide fragment of claim 1, wherein said casein kinase II  
15 phosphorylation motif is located downstream of the pRb binding motif.
5. The BOG polypeptide fragment of claim 4, further comprising a second casein kinase  
II phosphorylation motif, said second casein kinase II phosphorylation motif being  
located upstream of the pRb binding motif.
- 20 6. The BOG polypeptide fragment of claim 1 joined to a detectable label.
7. The BOG polypeptide fragment of claim 6, wherein the detectable label includes a  
radioactive isotope, an enzyme, a chromophore or a mixture thereof.
- 25 8. An isolated nucleic acid encoding a BOG polypeptide fragment.
9. The nucleic acid of claim 8, comprising a nucleotide sequence coding for an amino  
acid sequence as shown in Table 1, Table 5 or Table 7.
- 30 10. The nucleic acid of claim 8, wherein the nucleic acid sequence is codon optimized for  
a specific host cell.
11. The nucleic acid of claim 8 joined to a detectable label.

12. A nucleic acid probe capable of hybridizing with the nucleic acid of claim 8.
13. The nucleic acid of claim 8, wherein said nucleic acid is DNA.
- 5 14. The nucleic acid of claim 13, wherein the DNA is cDNA.
15. The nucleic acid of claim 8, wherein the nucleic acid is RNA.
- 10 16. The nucleic acid of claim 15, wherein the RNA is mRNA.
17. A vector comprising a polynucleotide encoding the BOG polypeptide fragment of claim 1.
- 15 18. The vector of claim 17, wherein the nucleic acid is operably linked to at least one control sequence capable of being recognized by a host cell transformed with the vector.
19. A host cell comprising the vector of claim 18.
- 20 20. A process for producing BOG polypeptide fragments comprising culturing the host cell of claim 19 under conditions such that the BOG polypeptide fragment is produced.
- 25 21. A BOG polypeptide fragment produced by the method of claim 20.
22. A BOG antisense oligonucleotide comprising a nucleotide sequence which is complimentary to an mRNA encoding a polypeptide comprising a BOG polypeptide fragment.
- 30 23. A chimeric molecule comprising a BOG polypeptide fragment fused to a heterologous amino acid sequence.
24. An isolated BOG specific polypeptide comprising an F<sub>ab</sub> fragment from an antibody capable of specifically binding to a BOG polypeptide fragment.
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25. The isolated BOG specific polypeptide of claim 24, wherein said polypeptide comprises an isolated antibody.
- 5 26. The BOG specific polypeptide of claim 25, wherein said antibody is a polyclonal, monoclonal or chimeric antibody.
27. A method of assaying a sample for a polynucleotide encoding a BOG polypeptide fragment comprising detecting the presence or absence of said polynucleotide in said  
10 sample utilizing the nucleic acid probe of claim 12.
28. A method of assaying a sample for a BOG polypeptide fragment comprising detecting the presence or absence of said BOG polypeptide fragment in said sample utilizing an isolated BOG specific polypeptide which includes a F<sub>ab</sub> fragment from an antibody  
15 capable of specifically binding to the BOG polypeptide fragment.
29. A method of reducing BOG polypeptide fragment expression in a cell comprising exposing the cell to an oligonucleotide of at least about 15 nucleotides which are complementary to a BOG mRNA.  
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30. A method of inducing apoptosis in cells overexpressing BOG polypeptide fragments comprising exposing said cells to an effective amount of TGF- $\beta$  and at least one BOG antisense oligonucleotide.
- 25 31. A method for producing cell lines having an altered phenotype comprising:  
(i) transfecting in vitro mammalian cells with a DNA vector encoding a BOG polypeptide fragment;  
(ii) expressing the BOG polypeptide fragment in said cells; and  
(iii) selecting for cells having an altered phenotype.  
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32. A method of inhibiting the interaction between a pRb A/B domain binding protein and a pRb family member comprising exposing the pRb family member to a BOG polypeptide fragment.